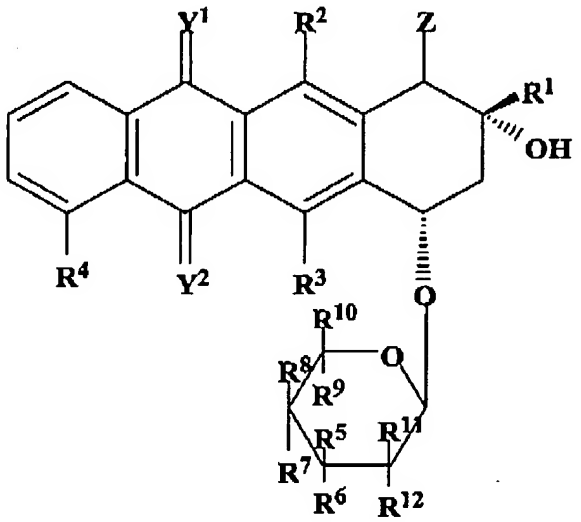
In the Claims:

Please amend the claims as listed in the following listing of claims, which replaces all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (currently amended) A substituted anthracycline comprising the formula:



wherein, R^1 is ~~a nucleic acid intercalator, a topoisomerase inhibitor,~~ an alkyl chain, a (-$COCH_2R^{13}$) group, or a (C(OH)- CH_2R^{13}) group;

wherein, R^{13} is a hydrogen (-H) group, a hydroxyl group (-OH), a methoxy group (-OCH_3), an alkoxy group comprising 1-20 carbon atoms, an alkyl group comprising 1-20 carbon atoms, an aryl group comprising 1-20 carbon atoms, a fatty acyl group comprising the general structure -O-$CO(CH2)_nCH_3$, wherein n = an integer from 1 to about 20, a fatty acyl group comprising the general structure -O-$CO(CH_2)_l(CH{=}CH)_m(CH_2)_nCH_3$, wherein l is an integer between 1 to 3, m is an integer between 1 and 6, and n is an integer between 1 and 9, a -OCO-$(CH_2)_n$-CH_2NH_2 group, or a OCO-$(CH_2)_n$-CO_2H group;

wherein R^2 and R^3 are, independently of the other, a hydrogen (-H), a hydroxyl group (-OH), or a methoxy group ($-OCH_3$);

R^4 is a hydrogen (-H) group, a methoxy group ($-OCH_3$), a hydroxyl group (-OH), or a halide;

wherein Y^1 and Y^2 are, independently of the other, a double bonded oxygen, sulphur, or nitrogen atom;

wherein Z is a –H, -OH, a $-CO_2H$, or a $-CO_2R$ group;

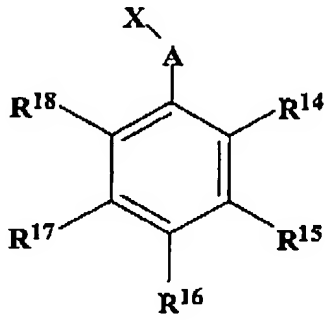
wherein R^7, R^8, are, independently, -H, -OH, a halide, $-OR^{19}$, -SH, $-SR^{19}$, $-NH_2$, $-NHR^{19}$, $-N(R^{19})_2$ or $-CH_3$, and R^7 can additionally be a saccharide, wherein R^{19} is an alkyl chain, an alkylating moiety, a cycloalkyl chain, a cyclic ring, or a hydrogen;

wherein R^9 is an –H, $-CH_3$, alkyl, aryl, CH_2OH, or a CH_2F group;

wherein R^{10}, R^{11}, and R^{12} are, independently, -H, -OH, a halide, -OR, -SH, -SR, $-NH_2$, -NHR, $-N(R)_2$, or a $-CH_3$;

wherein one of R^5 and R^6 is an -H;

wherein one of R^5 and R^6 is a X-alkyl-aromatic-ring (-XAAR) substituent, wherein, A is an alkyl group and wherein, AR is an substituted phenyl ring, a substituted five-member ring, a heteroatomic five-member ring, or a heteroatomic six-member ring, of the form:



;

wherein at least one of R^{14}-R^{18} is an (-H) group and wherein at least one of R^{14}-R^{18} is a, a hydroxyl group (-OH), a methoxy group (-OCH_3), a nitro group (-NO_2), an amine group (-NH_2), a halide, an alkoxy group comprising 1-20 carbon atoms, an alkyl group comprising 1-20 carbon atoms, an aryl group comprising 1-20 carbon atoms, an alkyl-amino group, an alkyl-thio group, a cyano group (CN, SCN), a -CO_2H group, or a -CO_2R group; and

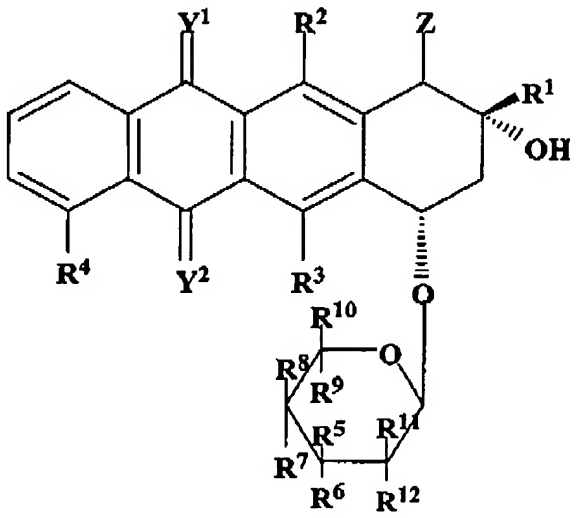
X is a -O, –N, -S, -SO, or a -SO_2 group; and

A is $(CH_2)_n$ where n = 0-10;

wherein, if R^5 is a XAAR substituent R^6 is not and if R^6 is a XAAR substituent R^5 is not.

Claims 2-16 (cancelled).

17. (currently amended) A substituted anthracycline comprising the formula:



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wherein, R^1 is ~~a nucleic acid intercalator, a topoisomerase inhibitor,~~ an alkyl chain, a (-$COCH_2R^{13}$) group, or a (C(OH)- CH_2R^{13}) group;

wherein, R^{13} is a hydrogen (-H) group, a hydroxyl group (-OH), a methoxy group (-OCH_3), an alkoxy group comprising 1-20 carbon atoms, an alkyl group comprising 1-20 carbon atoms, an aryl group comprising 1-20 carbon atoms, a fatty acyl group comprising the general structure -O-CO(CH2)$_n$$CH_3$, wherein n = an integer from 1 to about 20, a fatty acyl group comprising the general structure -O-$CO(CH_2)_l(CH{=}CH)_m(CH_2)_nCH_3$, wherein l is an integer between 1 to 3, m is an integer between 1 and 6, and n is an integer between 1 and 9, a -OCO-$(CH_2)_n$-CH_2NH_2 group, or a OCO-$(CH_2)_n$-CO_2H group;

wherein R^2 and R^3 are, independently of the other, a hydrogen (-H), a hydroxyl group (-OH), or a methoxy group (-OCH_3);

wherein R^4 is a hydrogen (-H) group, a methoxy group (-OCH_3), a hydroxyl group (-OH), or a halide;

wherein Y^1 and Y^2 are, independently of the other, a double bonded oxygen, sulphur, or nitrogen atom;

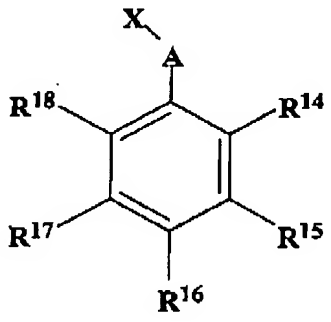
wherein Z is a –H, -OH, a -CO_2H, or a -CO_2R group;

wherein R^5 and R^6, are, independently, -H, -OH, a halide, -OR^{19}, -SH, -SR^{19}, -NH_2, -NHR^{19}, -$N(R^{19})_2$ or -CH_3, and R^5 can additionally be an alkylating moiety, wherein R^{19} is an alkyl chain, an alkylating moiety, a cycloalkyl chain, a cyclic ring, or a hydrogen;

wherein R^9 is an –H, -CH_3, alkyl, aryl, CH_2OH, or CH_2F group;

wherein R^{10}, R^{11}, and R^{12} are, independently, -H, -OH, a halide, -OR, -SH, -SR, -NH_2, -NHR, -$N(R)_2$ or -CH_3;

wherein one of R^7 and R^8 is an –H and wherein one of R^7 and R^8 is a X-alkyl aromatic-ring (-XAAR) substituent, wherein, A is an alkyl group and wherein, AR is an unsubstituted phenyl ring, a substituted ~~phenly~~ phenyl ring, a substituted five-member ring or a heteroatomic five-member ring, of the general form:



;

wherein, R^{14}-R^{18} are independently a (-H) group, a hydroxyl group (-OH), a methoxy group ($-OCH_3$), a nitro group ($-NO_2$), an amine group ($-NH_2$), a halide, an alkoxy group having 1-20 carbon atoms, an alkyl group having 1-20 carbon atoms, an aryl group having 1-20 carbon atoms, an alkyl-amino group, an alkyl-thio group, a cyano group (CN, SCN), an -CO_2H group, or a -CO_2R group; and

X is a -O, -N, -S, –SO, or a -SO_2 group; and

A is $(CH_2)_n$, where n = 0-10;

wherein if R^7 is a XAAR substituent R^8 is not and if R^8 is a XAAR substituent R^7 is not.

Claims 18-47 (cancelled).

48. (currently amended): The substituted anthracycline of claim 1, wherein the aromatic ring of the -XAAR substituent is disubstituted, trisubstituted, tetrasubstituted, or pentasubstituted.

49. (previously presented) The substituted anthracycline of claim 1, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

50. (currently amended) The substituted anthracycline of claim 17, wherein the aromatic ring of the -XAAR substituent is disubstituted, trisubstituted, tetrasubstituted, or pentasubstituted.

51. (previously presented) The substituted anthracycline of claim 17, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

52. (currently amended) A method of treating ~~or preventing~~ cancer comprising administering to a patient a substituted anthracycline of claim 1 or claim 17.

53. (previously presented): The method of claim 52, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

54. (previously presented): The method of claim 52, wherein the substituted anthracycline is the substituted anthracycline of claim 1.

55. (previously presented): The method of claim 52, wherein the substituted anthracycline is the substituted anthracycline of claim 17.

56. (previously presented): The method of claim 52, wherein the cancer is breast cancer, lung cancer, ovarian cancer, Hodgkin's disease, non-Hodgkin's lymphoma, acute leukemia, or carcinoma of the testes.

57. (previously presented): The method of claim 56, wherein the cancer is breast cancer.

58. (new) The substituted anthracycline of claim 1 comprising the formula: